

Mithi Alexa C. de los Reyes

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<https://mdlreyes.github.io> | <https://bobalab.space>

Employment	<i>Assistant Professor of Physics and Astronomy</i>	July 2023 - present
	Department of Physics and Astronomy, Amherst College, Amherst, MA	
	<i>Postdoctoral Researcher</i>	Aug. 2022 - July 2023
	Kavli Institute of Particle Astrophysics and Cosmology, Palo Alto, CA	
Education	<i>California Institute of Technology, Pasadena, CA</i>	Sept. 2017 - June 2022
	PhD in Astrophysics (June 2022)	
	Advisor: Evan Kirby	
	Thesis: <i>Dwarf Galaxies in the Local Universe as Probes of Stellar and Galactic Evolution</i>	
	MS in Astrophysics (June 2019)	
	<i>Institute of Astronomy, University of Cambridge, UK</i>	Oct. 2016 - Jul. 2017
	MPhil in Astronomy (August 2017)	
	Advisor: Rob Kennicutt	
	Thesis: <i>The Integrated Star Formation Law in Nearby Galaxies</i>	
	<i>North Carolina State University, Raleigh, NC</i>	Aug. 2012 - May 2016
	BS Physics (summa cum laude), BS Mathematics (summa cum laude)	
Awards and Honors	LSST Scialog Fellow	2024
	Stanford Science Fellowship	2022
	Caltech Three Minute Thesis, First Prize and People's Choice winner	2021
	Ford Foundation Dissertation Fellowship, Honorable Mention	2021
	NSF Graduate Research Fellowship	2016
	Winston Churchill Scholarship	2016
	Astronaut Scholarship	2014 & 2015
	Barry M. Goldwater Scholarship	2014
	Park Scholarship (full-tuition merit scholarship to NCSU)	2012
Teaching	Instructor of record , Amherst College	
	<ul style="list-style-type: none">• Observational Techniques (ASTR 337): Fall 2023, Fall 2024• Introductory Astrophysics (ASTR 235): Fall 2024• Advanced Astrophysics (ASTR 352): Spring 2024, Spring 2025• Intro to Data Science with Astronomical Applications (ASTR 200): Spring 2024, Spring 2025	
	Pedagogical Partner Program member , Amherst College	
	<ul style="list-style-type: none">• Worked with student partner Ha Dong '26 to develop teaching practices for ASTR 352 (Spring 2024)	
	Teaching assistant , Caltech	
	<ul style="list-style-type: none">• Assisted, guest lectured for, and developed course materials for Ay123 (graduate-level Stars), Ay124 (graduate-level Galaxies), Ay126 (graduate-level Interstellar Medium), Ay101 (undergraduate-level Stars)	

Mentorship

Undergraduate honors thesis students

- Kinsey Cronin (class of 2025)
- Elizabeth Hillenkamp (class of 2024): “BRIDGE-ing the Intermediate-Mass Black Hole Gap: Analysis of a Candidate Wandering Black Hole in a Dwarf Galaxy”

Undergraduate advising

- Research supervisor for 5 Amherst students and 3 non-Amherst students
- Amherst Summer Undergraduate Research Fellowship (SURF): research supervisor for 3 students
- Mini-course instructor in Amherst STEM Incubator program, dedicated to introducing students from underrepresented backgrounds to research

Graduate advising

- Leonardo Barba (UMass PhD student): Initial Research Project on “Gas Kinematics in Nearby Dwarf Galaxies”

Outreach and Professional Service

College service

- Amherst College Observatory Director Aug. 2024 - present
 - Manages and maintains 5 rooftop telescopes
 - Coordinates with student observatory managers
 - Runs outreach events for Amherst College community, admissions events, and general public
- Department Climate and Community Committee Aug. 2024 - present
- Other service and outreach
 - Academic advisor for 9 Amherst undergraduates (6 first-year advisees, 3 physics/astronomy majors)
 - Invited panelist at 2024 Amherst College New Faculty Orientation
 - Organized Solar Week (4 days of tabling and science demos leading up to total solar eclipse in Apr. 2024, handed out >1000 eclipse glasses)

Professional service

- Reviewer (within past 5 years) for *NASA*, *European Research Council*
- Journal referee (within past 5 years) for *Astronomy & Astrophysics*, *Astronomical Journal*, *Astrophysical Journal*, *Monthly Notices of the Royal Astronomical Society*

Refereed Publications

(Asterisks * note undergraduate or graduate students directly supervised by MADLR)

de los Reyes, M.A., Asali, Y., Wechsler, R., Geha, M., Mao, Y.-Y., et al. (including *Grant, W.) “Stellar Mass Calibrations for Local Low-Mass Galaxies.” (submitted to ApJ, [arXiv:2409.03959](#))

Kado-Fong, E., Geha, M., Mao, Y.-Y., **de los Reyes, M.A.**, et al. “SAGAbg II: the Low-Mass Star-Forming Sequence Evolves Significantly Between $0.05 < z < 0.21$.” (submitted to ApJ, [arXiv:2409.12221](#))

Wang, Y., et al. (including **de los Reyes, M.A.**) “The SAGA Survey. V. Modeling Satellite Systems around Milky Way-mass Galaxies with Updated UniverseMachine.” (submitted to ApJ, [arXiv:2404.14500](#))

- Geha, M., et al. (including **de los Reyes, M.A.**) “The SAGA Survey. IV. The Star Formation Properties of 101 Satellite Systems around Milky Way-mass Galaxies.” (accepted by ApJ, [arXiv:2404.14499](#))
- Mao, Y.Y., et al. (including **de los Reyes, M.A.**) “The SAGA Survey. III. A Census of 101 Satellite Systems around Milky Way-mass Galaxies.” (accepted by ApJ, [arXiv:2404.14498](#))
- Zhuang, Z., Kirby, E.N., Steidel, C.C., **de los Reyes, M.A.**, et al. “Metals in Star-Forming Galaxies with KCWI. I. Methodology and First Results on the Abundances of Iron, Magnesium, and Oxygen.” *The Astrophysical Journal* 972.182 (2024). [doi:10.3847/1538-4357/ad5ff8](#)
- Kado-Fong, E., Geha, M., Mao, Y.-Y., **de los Reyes, M.A.**, et al. “SAGAbg I: A Near-Unity Mass Loading Factor in Low-Mass Galaxies via their Low-Redshift Evolution in Stellar Mass, Oxygen Abundance, and Star Formation Rate.” *The Astrophysical Journal* 966.129 (2024). [doi:10.3847/1538-4357/ad3042](#)
- Yuan, S., Wechsler, R.H., Wang, Y., **de los Reyes, M.A.**, et al. “Unraveling Emission Line Galaxy Conformity at $z \sim 1$ with DESI Early Data.” (submitted to MNRAS, [arXiv:2310.09329](#))
- Wang, S., et al. (including **de los Reyes, M.A.**) “High-Resolution Chemical Abundances of the Nyx Stream.” *The Astrophysical Journal* 955.129 (2023). [doi:10.3847/1538-4357/acec4d](#)
- de los Reyes, M.A.**, Kirby, E.N., Zhuang, Z., Steidel, C.C., Chen, Y., Wheeler, C. “Dwarfs in Void Environments (DIVE): The Stellar Kinematics of Void Dwarf Galaxies Using the Keck Cosmic Web Imager.” *The Astrophysical Journal* 951.52 (2023). [doi:10.3847/1538-4357/acd189](#)
- de los Reyes, M.A.**, Kirby, E.N., Ji, A.P., Nuñez, E.H. “Simultaneous Constraints on the Star Formation History and Nucleosynthesis of Sculptor dSph.” *The Astrophysical Journal* 925.66 (2022). [doi:10.3847/1538-4357/ac332b](#)
- Zhuang, Z., Kirby, E.N., Leethochawalit, N., & **de los Reyes, M.A.** “NGC 147 Corroborates the Break in the Stellar Mass-Stellar Metallicity Relation for Galaxies.” *The Astrophysical Journal* 920.63 (2021). [doi:10.3847/1538-4357/ac1340](#)
- Kennicutt, R.C. & **de los Reyes, M.A.** “Revisiting the Integrated Star Formation Law. Paper II: Starbursts and the Combined Global Schmidt Law.” *The Astrophysical Journal* 908.61 (2021). [doi:10.3847/1538-4357/abd3a2](#)
- Shin, K., et al. (including **de los Reyes, M.A.**) “Metal Abundances across Cosmic Time (MACT) Survey. III. The Relationship between Stellar Mass and Star Formation Rate in Extremely Low-Mass Galaxies.” *Monthly Notices of the Royal Astronomical Society* 502.2 (2021). [doi:10.1093/mnras/staa3307](#)
- de los Reyes, M.A.**, Kirby, E.N., Seitzzahl, I.R., Shen, K.J. “Manganese Indicates a Transition from Sub- to Near-Chandrasekhar Type Ia Supernovae in Dwarf Galaxies.” *The Astrophysical Journal* 891.85 (2020). [doi:10.3847/1538-4357/ab736f](#)
- Kirby, E.N., et al. (including **de los Reyes, M.A.**) “Evidence for Sub-Chandrasekhar Type Ia Supernovae from Stellar Abundances in Dwarf Galaxies.” *The Astrophys-*

	ical Journal 881.45 (2019). doi:10.3847/1538-4357/ab2c02	
	de los Reyes, M.A. & Kennicutt, R.C. “Revisiting the Integrated Star Formation Law. Paper I: Non-Starbursting Galaxies.” <i>The Astrophysical Journal</i> 872.16 (2019). doi:10.3847/1538-4357/aafa82	
	Kneller, J.P. & de los Reyes, M.A. “The Effect of Core-Collapse Supernova Accretion Phase Turbulence on Neutrino Flavor Evolution.” <i>Journal of Physics G: Nuclear and Particle Physics</i> 44.8 (2017). doi:10.1088/1361-6471/aa7bc8	
	Ly, C., et al. (including de los Reyes, M.A.) “The Metal Abundance Across Cosmic Time (MACT) Survey I: Optical Spectroscopy in the Subaru Deep Field.” <i>The Astrophysical Journal Supplement Series</i> 226.5 (2016). doi:10.3847/0067-0049/226/1/5	
	de los Reyes, M.A., Ly, C., Lee, J.C., et al. “The Relationship Between Stellar Mass, Gas Metallicity, and Star Formation Rate for H α -selected Galaxies at $z \approx 0.8$ from the NewH α survey.” <i>The Astronomical Journal</i> 149.79 (2015). doi:10.1088/0004-6256/149/2/79	
Additional Publications	de los Reyes, M.A. “Astronomers Need to Rename the Magellanic Clouds.” <i>Physics</i> 16.152 (2023). doi:10.1103/Physics.16.152	
	Kahanamoku, S., et al. (including de los Reyes, M.A.) “A Native Hawaiian-led summary of the current impact of constructing the Thirty Meter Telescope on Maunakea.” Astro2020 white paper (2020). arXiv:2001.00970	
	Khullar, G., et al. (including de los Reyes, M.A.) “Astrobites as a Community-led Model for Education, Science Communication, and Accessibility in Astrophysics.” Astro2020 white paper (2019). arXiv:1907.09496	
Successful Observing Proposals	“Star Formation in Massive Satellites around Milky Way Analogs” de los Reyes, M.A., *Kleiman, S. Perkins Telescope Observatory: PRISM (4 nights)	2024Q3
	“Star Formation in Dwarf Galaxies as a Function of Environment” de los Reyes, M.A., *Hillenkamp, E., Asali, Y. Perkins Telescope Observatory: PRISM (4 nights)	2023Q4
	“Nucleosynthesis in Degenerate Objects” Kirby, E.N., de los Reyes, M.A., Duggan, G.E. Keck II: DEIMOS (7 nights)	2018A, 2018B, 2019A, 2020A, 2021A
	“Chemical Abundances of Nyx Stars” Necib, L., Ji, A., Strom, A.E., de los Reyes, M.A. Keck I: HIRES (4 nights)	2020A
	“Spatially Resolved Metallicities in Void Dwarf Galaxies” Kirby, E.N., de los Reyes, M.A., Steidel, C.S. Keck II: KCWI (3 nights)	2019B
Invited Research Presentations	<i>Astronomy Colloquium</i> , University of Toronto	Feb. 2025
	<i>Astronomy Colloquium</i> , Wesleyan College	Dec. 2024

	<i>Astronomy Colloquium</i> , Dartmouth College	Oct. 2024
	<i>Physics & Astronomy Colloquium</i> , Williams College	Apr. 2024
	<i>Physics & Astronomy Colloquium</i> , Williams College	Apr. 2024
	<i>Astronomy Colloquium</i> , University of Michigan	Mar. 2024
	<i>Astronomy Colloquium</i> , Eastern Michigan University	Mar. 2024
	<i>FCAD Colloquium</i> , UMass Amherst	Feb. 2024
	<i>Galaxies Science Interest Group Meeting</i> , NASA (link)	Nov. 2023
	<i>Samahang Pisika ng Pilipinas 41st Meeting</i> , Siargao, Philippines	July 2023
	<i>CIERA Observers Seminar</i> , Northwestern University Center for Interdisciplinary Exploration and Research in Astrophysics (CIERA)	May 2023
	<i>GANAP Seminar</i> , University of the Philippines Diliman	Mar. 2023
	<i>Cosmology & Astronomy Seminar</i> , UC Davis	Jan. 2023
	<i>Physics Colloquium</i> , Davidson College	Nov. 2022
	<i>AAS Journal Author Series</i> , American Astronomical Society (link)	July 2022
	<i>Astronomy Seminar</i> , Departamento de Astronomia IAG-USP	June 2022
	<i>Astro/Space Seminar</i> , University of Kansas	Nov. 2021
	<i>Physics & Astronomy Colloquium</i> , Pomona College	Nov. 2021
	<i>Theoretical Astrophysics Center Seminar</i> , UC Berkeley	Nov. 2021
	<i>Astro Lunch</i> , University of Pittsburgh/Carnegie Mellon University	Oct. 2021
	<i>Astronomy Seminar</i> , Michigan State University	Oct. 2021
	<i>Galaxy Hour</i> , Ohio State University	Oct. 2021
	<i>Science Happy Hour</i> , Northwestern University CIERA	Oct. 2021
	<i>Lunch Talk</i> , Carnegie Observatories	Sept. 2021
	<i>CfA Seminar</i> , Center for Astrophysics Harvard & Smithsonian	Sept. 2021
	<i>Physics & Astronomy Colloquium</i> , Cal Poly Pomona	Oct. 2019
Contributed Research Presentations	<i>Dwarf Galaxies, Star Clusters, and Streams in the LSST Era</i> (KICP)	July 2024
	<i>243rd AAS Meeting</i> (New Orleans, LA)	Jan 2024
	<i>Dwarf Galaxies in the Local Volume and Beyond</i> (Flatiron/CCA)	July 2023
	<i>Keck Science Meeting</i> (UCSD)	Sept. 2021
	<i>235th AAS Meeting</i> (Honolulu, HI)	Jan. 2020
	<i>Keck Science Meeting</i> (UCLA)	Sept. 2019
	<i>233rd AAS Meeting</i> ; Chambliss Student Award Winner (Seattle, WA)	Jan. 2019
	<i>Stellar Archaeology as a Time Machine</i> (Kavli IPMU, Tokyo, Japan)	Dec. 2018
	<i>Laws of Star Formation</i> (Institute of Astronomy, Cambridge, UK)	July 2018
	<i>232nd AAS meeting</i> (Denver, CO)	June 2018
Other Invited Presentations	<i>The Scales of Star Formation in Galaxies</i> (Sexten, Italy)	July 2017
	<i>223rd AAS meeting</i> (Washington, DC)	Jan. 2014
	<i>CfA Harvard, Equity & Inclusion Journal Club</i>	Jan. 2025
	<i>SciTech Cafe</i>	Oct. 2024
	<i>Committee On Inclusiveness in SDSS</i>	May 2024
	<i>Mount Holyoke College Astronomy Club</i>	Apr. 2024
	<i>Amherst College HPC Celebration</i>	Apr. 2024
	<i>XMC Workshop: Milky Clouds over Manhattan</i> (Flatiron/CCA)	Feb. 2024
	<i>Lamat AstroTalk</i> (UCSC)	June 2023
	<i>KIPAC Community Day</i>	Apr. 2023
	<i>Open Cultural Astronomy Forum Seminar</i>	Feb. 2023
	<i>San Diego Astronomy Association</i>	Oct. 2020
	<i>California Academy of Sciences Virtual NightLife series</i>	July 2020
	<i>Caltech Astronomy Stargazing and Lecture series</i>	May 2020
	<i>Astronomy on Tap: Los Angeles</i>	Jan. 2018